

## Steps to Inquiry

# Initiate & Plan

### Step 1: Observing & Questioning

#### What did I observe?

*(What do you notice about the object or event? Use your senses to describe the object or event.)*

This is the control.

#### What am I wondering?

*(What questions or predictions do you have about the object or event?)*

How can the questions be answered?  
(Question Sort)

Labelled diagram:

## Steps to Inquiry

# Initiate & Plan

Step 2(a): **What could I measure or observe about the object, or event?**

- Brainstorm *(Place sticky notes of the same colour in the square below.)*

Possible Dependent  
Variables

Step 2(b): **What could I change or vary about the object or the event that may affect what I could measure or observe?**

- Brainstorm *(Place sticky notes of a new colour in the square below.)*

Variables

## Steps to Inquiry

# Initiate & Plan

Step 3 (a): **What will I change?**

One variable I will change:

Independent  
Variable

*(Place a sticky note from Step 2(b) here)*



I will measure or observe this result:

Dependent  
Variable

*(Place a sticky note from Step 2(a) here)*

Step 3 (b): **What will I not change?**

Variables I will NOT change:

What conditions will be held constant so it is a fair test? *Place remaining sticky notes from Step 2(b) here.*

Control  
Variable

Control  
Variable

Control  
Variable

Control  
Variable

Control  
Variable

Control  
Variable

## Steps to Inquiry

# Initiate & Plan

Step 4: **What is the question I want to explore?**



Step 5: **What is my prediction (what and why)?**

Based upon my question, I predict that :

if the \_\_\_\_\_ is (↑ or ↓) \_\_\_\_\_  
Independent Variable How will the independent variable be changed?

**What?**

then the \_\_\_\_\_ will (↑ or ↓) \_\_\_\_\_  
Dependent Variable

\_\_\_\_\_ .  
How will the dependent variable be affected?

I think this will happen because \_\_\_\_\_

**Why?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ .

# Steps to Inquiry

## Plan, Perform & Record

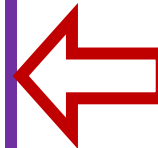
### Step 6: How will I test my prediction?

#### My Test Set-Up

Here's how I will change the variable...



Independent Variable



#### My Control Set-Up

Here's how I won't change this variable...

(What will I do?  
How will I change the variable?)

(What will I do?  
How will I keep the variable the same?)

*My Test Steps:*

*My Control Steps:*



# Steps to Inquiry

## Plan, Perform & Record

Step 7a): **How will I record our observations and/or measurements?**

Sample Chart for Recording Measurements / Observations

- Modify this chart to suit your investigation or design your own. (Specify units if appropriate.)

<p>What I changed:</p> <p>_____ (____) units</p> <p>(Independent Variable)</p>	<p>What I measured/observed:</p> <p>_____ (____) units</p> <p>(Dependent Variable)</p>			
	Observation #1	Observation #2	Observation #3	Observation #4
<p>Control Condition:</p>				
<p>Condition 1:</p>				
<p>Condition 2:</p>				

## Steps to Inquiry

# Plan, Perform & Record

### Step 7b): Equipment Set-Up & Check

Have I ....

- ☒ collected all of the materials?
- ☒ organized and/or set-up my equipment properly?
- ☒ reviewed my procedure and recording chart?
- ☒ made changes where necessary?

### Step 7c): Perform Experiment and Collect the Data

Follow the procedure to complete the experiment.  
Record the data in your chart. (See Step 7a).

# Steps to Inquiry

## Analyze & Interpret

### Step 8: Graphing Results

What type of graph best suits my data?

Bar Graph

Line Graph

Other

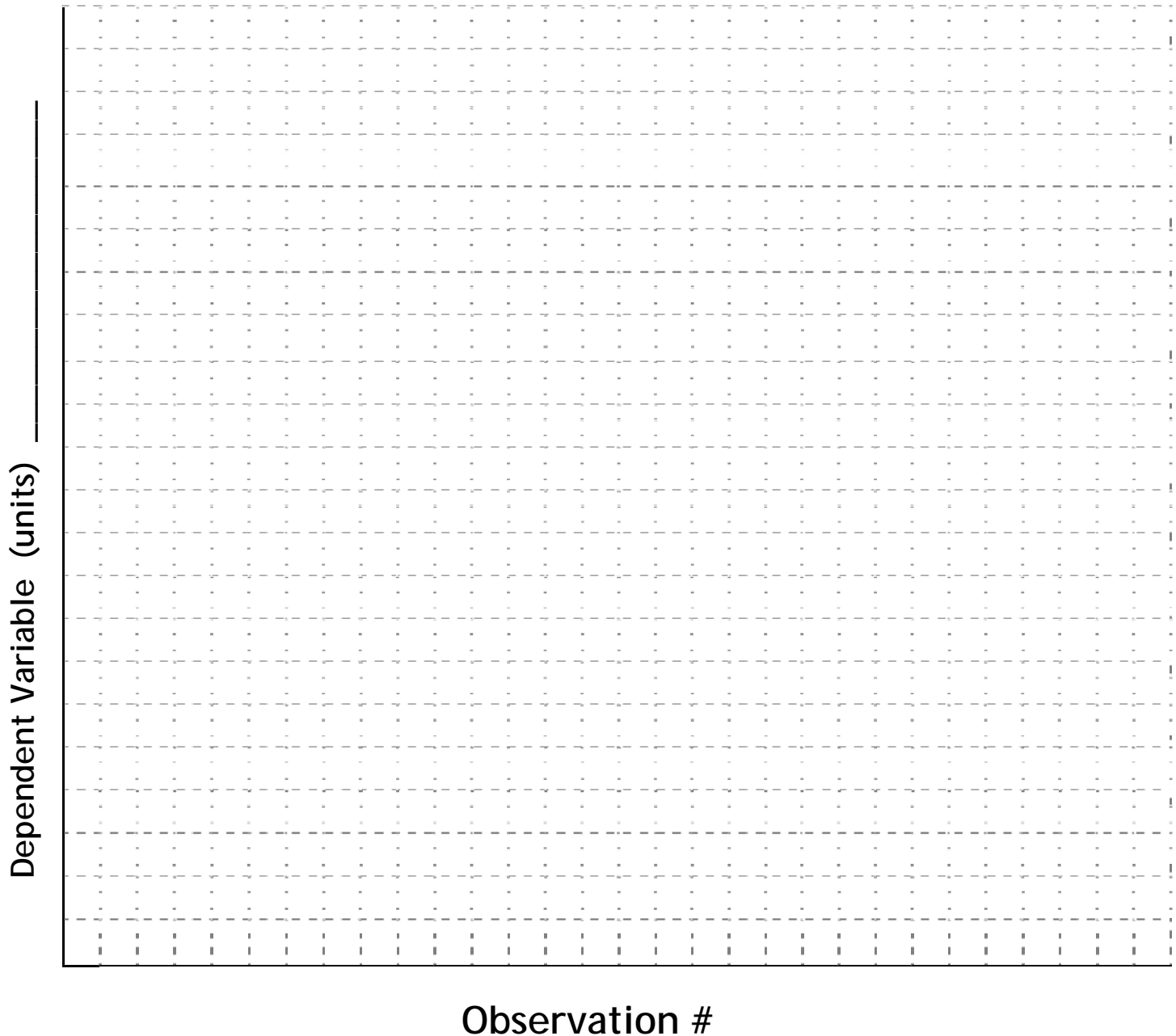


Figure # \_\_\_\_: \_\_\_\_\_  
(descriptive caption)

*Remember to label axes, add scales appropriately and include a legend*

Page 1 of 3

**Process Skills:** *Beginning* → *Exploring* → *Emerging* → *Competent* → *Proficient*

# Steps to Inquiry

## Analyze & Interpret

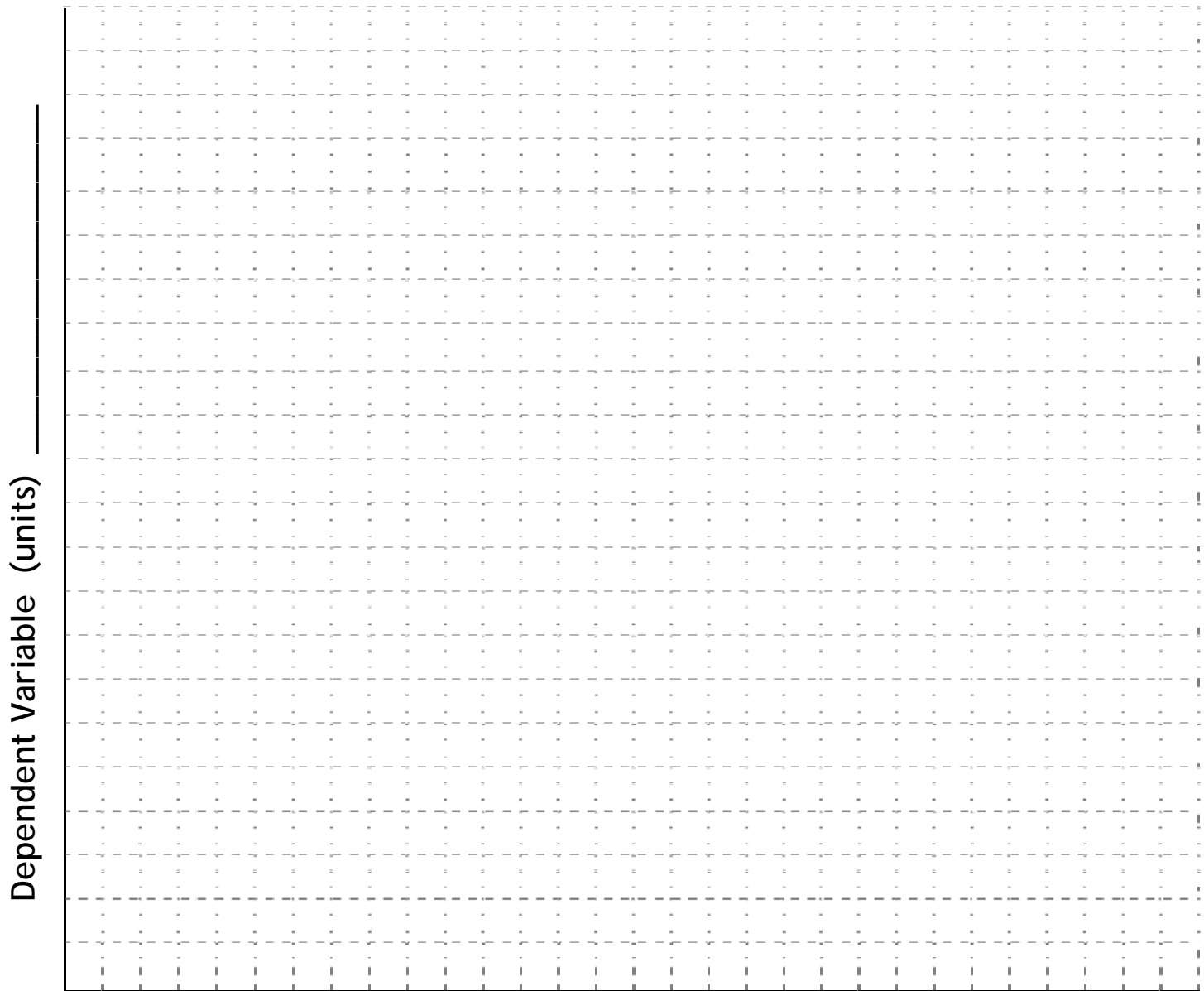
### Step 8: Graphing Results *(continued)*

What type of graph best suits my data?

Bar Graph

Line Graph

Other



Independent Variable (units) \_\_\_\_\_

Figure # \_\_\_\_: \_\_\_\_\_

(descriptive caption)

*Consider measures of central tendency\* (mode, median and mean).*

Page 2 of 3

**Process Skills:** *Beginning* → *Exploring* → *Emerging* → *Competent* → *Proficient*

# Steps to Inquiry

## Analyze & Interpret

### Step 9: Finding Patterns and Relationships in Results

From the graphs and table:

What I changed: _____ (Independent Variable) ( ) units	What I saw happen: _____ (Dependent Variable) ( ) units			
	Central Value*	Highest Value	Lowest Value	Rank
Control Condition:				
Condition 1:				
Condition 2:				

The trends show that when the \_\_\_\_\_, \_\_\_\_\_,  
*(Independent variable) (increases/decreases)*  
 the \_\_\_\_\_  
*(Describe what happens to the dependent variable)*

I know this because:  
*(What is my evidence?)*

Qualitative Data	When I observed _____
	I saw/heard/felt/smelled, _____
	_____
	_____
Quantitative Data	When I measured _____
	with _____, I found _____
	_____
	_____

# Steps to Inquiry Communicate

## Step 10: Communicating My Results

*Answer the question in a general way.*

When I \_\_\_\_\_ the \_\_\_\_\_ the  
increased / decreased independent variable

\_\_\_\_\_ .  
what I measured/observed increased / decreased

*Provide evidence from your observations or tests.*

For example: The \_\_\_\_\_ was \_\_\_\_\_ when  
dependent variable highest value

the \_\_\_\_\_ was \_\_\_\_\_ . But the  
independent variable value/setting

\_\_\_\_\_ was only \_\_\_\_\_ when the \_\_\_\_\_  
dependent variable lowest/setting dependent value

was \_\_\_\_\_ .  
value/setting


*Make a concluding statement based on the evidence.*


Therefore, changing \_\_\_\_\_ makes  
the independent variable

\_\_\_\_\_ .  
the dependent variable change observed

# Steps to Inquiry Communicate

*Refer to your prediction.*

<input checked="" type="checkbox"/> The data does support my prediction.

<p>The data does support my prediction because I predicted that _____ change in the IV</p> <p>would make _____ the change in the DV</p> <p>I thought _____ would cause this change because _____</p> <p>_____</p> <p>_____</p>

<input checked="" type="checkbox"/> The data does NOT support my prediction.

<p>The data does NOT support my prediction because I predicted that _____ change in the IV</p> <p>would make _____ the change in the DV</p> <p>I thought _____ would cause this change because _____</p> <p>_____</p> <p>_____</p> <p>Now I know that _____ the IV doesn't have that effect.</p>

*Make an inference:*

I think this happened because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Steps to Inquiry

# Communicate

## Step 10 b): Other Considerations

1. If you had data that was different from other groups (or was inconclusive or inconsistent), what might have caused these results?

2. How might have you improved your investigation?

3. What new/additional questions do you now want to investigate?